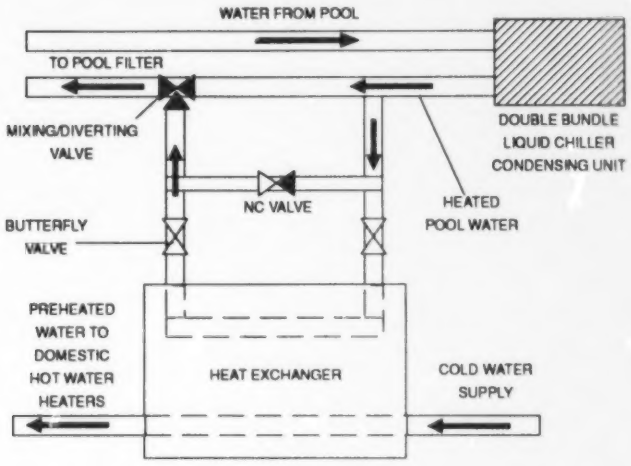
ENERGAIN

Waste Heat Recovery

A report on the Small Scale Energy Demonstration Program

Refrigerant Heat Recovery



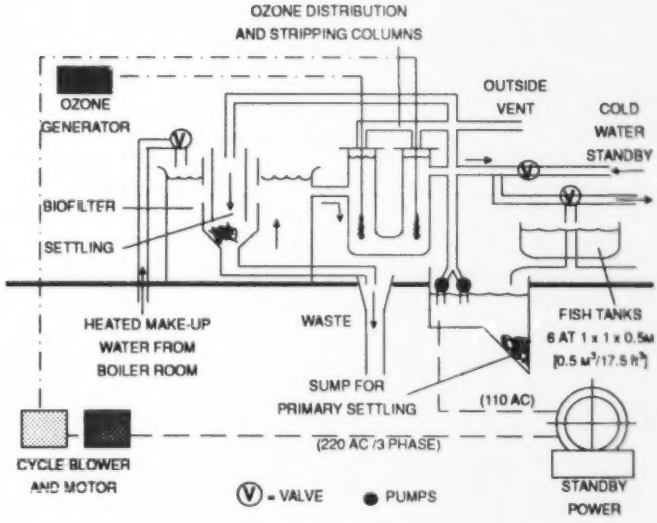
SCHEMATIC OF AQUARENA SYSTEM

Four refrigerant heat recovery projects were partially funded by CREDA. The aim of these projects was to recover heat normally rejected to the outside environment by an industrial refrigeration process. The projects took place at Humber Gardens in Corner Brook, the City Consumers Co-op Food Store in Mount Pearl, Hodder Memorial Stadium in Deer Lake, and the Aquarena in St. John's. All the projects were complex in nature and required substantial funding, but resulted in significant energy savings for the users.

The Aquarena project cost $20,000 to complete, and produced savings of $5700 a year, for a payback of 3.5 years. The Humber Gardens setup cost $15,200, saving $1740 annually, to give an 8.7 year payback. The other projects involved additional retrofit procedures besides refrigerant heat recovery, so individual payback figures for these specific systems are not available.

The refrigerant heat recovery systems were the most successful of the heat recovery projects, and are becoming a standard part of arena design.

Water Reuse



The Marine Science Research Laboratory in St. John's adopted a very successful heat recovery project, involving the installation of a biological filter system to allow recirculation of fish hatchery water which was previously discharged. The annual savings from the project are in excess of $6900. The total cost of installing the filter system was $5000, making the simple payback period only 9 months.

These projects were assisted by the Small Scale Energy Demonstration Program, which was part of CREDA, the Canada/Newfoundland Conservation and Renewable Energy Demonstration Agreement, funded by Energy, Mines and Resources Canada (80%) and the Newfoundland Department of Mines and Energy (20%).

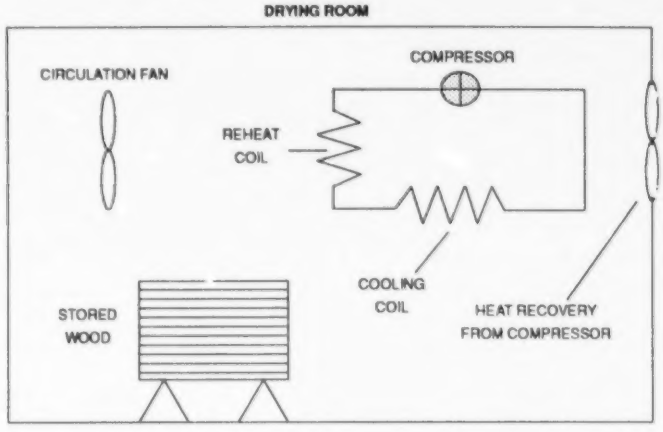
Department of Mines and Energy

Government of Newfoundland and Labrador

Hon. Rex Gibbons, Ph. D., Minister

Heat Pump Heat Recovery

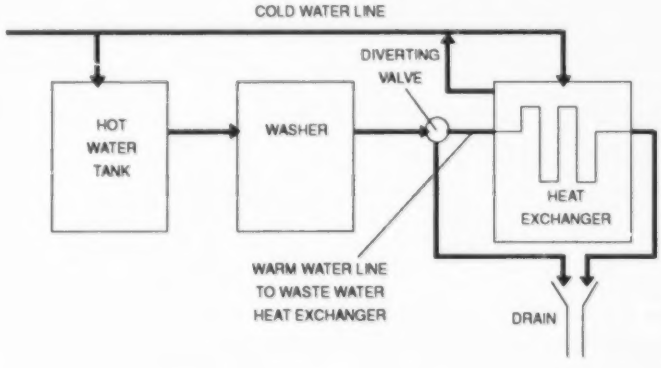
Russworthy Woodworking Limited, of Torbay, set up a heat pump lumber dryer system to provide warm, dry air for a wood-drying kiln. The heat pump dehumidifies the air in the chamber by cooling, and then reheating the air by recovering the rejected heat. No data are available on the success of the project because the company has since ceased operation. Trial runs carried out during commissioning did indicate that the design was successful. This technique is applicable to many other situations involving air-drying, such as fish and fruit-drying.



Waste Water Heat Recovery

A waste heat recovery project attempted at Merrymeeting Laundromat in St. John's was not successful. The intent was to install a heat exchanger to recover heat from the washing machine drain to preheat main boiler feed water. At that time, the system had to be custom-built. The equipment cost $11,800 to put in place, and savings of $4000 per year were expected, but serious technical problems arose, and the project was abandoned.

"Off-the-shelf" heat recovery systems now available for laundromats are relatively easy to install, and cost-effective.



Department of Mines and Energy

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